

NAVY PROGRAMS

E-2C Advanced Hawkeye

There are currently two E-2C configurations in the Hawkeye procurement program: the Hawkeye 2000 (HE2K) and the Advanced Hawkeye (AHE), which includes a Radar Modernization Program (RMP).

HE2K is an umbrella term for multiple improvements to the Group II E-2C, each of which is a separate program. The key objective of this series of modifications is the integration of Cooperative Engagement Capability (CEC). The integration of CEC into the E-2C will increase the air surveillance, detection, and tracking capabilities of the battlegroup. The improvements include the replacement of the current mission computer with a commercial off-the-shelf (COTS) computer (Mission Computer Upgrade (MCU)) and replacement of the control and display consoles with COTS workstations (Advanced Control Indicator Set); the integration of the airborne variant of the CEC system; an upgraded cooling system; UHF Satellite Communications; replacement of the current Passive Detection System with an Electronic Support Measures system; and development of a Mission Information Transfer System. To carry and employ CEC, the E-2C required increased mission computing and display capabilities, as well as an offset in weight and volume. These modifications will be incorporated into new E-2C aircraft production. The Navy also plans to retrofit these improvements into older E-2C aircraft. An upgraded inertial navigation system has also been added.

The AHE program entered System Design and Development in June 2003. This program will replace the E-2C's radar with a UHF Electronically Scanned Array radar via the RMP. This radar is intended to provide significantly increased detection performance over the current radar, particularly in overland and littoral operations. The AHE includes a number of other modifications including an upgraded Identification, Friend or Foe system, a modernized tactical cockpit, a new intercom system, upgraded electrical generators and power distribution system, an upgraded liquid cooling system, and ARC-210 and Multi-function Information Distribution System upgrades. Additionally AHE will incorporate mandated safety improvements including Crash Survivable Flight Incident Recorder, Terrain Approach Warning System/Ground Proximity Warning System, Collision Avoidance System, and Integrated Material Diagnostic System. Finally, CEC software modifications will be required by RMP.

TEST & EVALUATION ACTIVITY

MCU follow-on test and evaluation (FOT&E) will be conducted in parallel with the CEC E-2C operational evaluation now scheduled for 3QFY04.

RMP has completed a series of test flights using the radar technology demonstration system developed for Mountain Top installed on a C-130.

DOT&E approved the AHE Test and Evaluation Master Plan (TEMP) in June 2003.

During FY03, there was no E-2C HE2K operational testing but E-2C HE2K developmental testing continued.

The E-2C upgrades were reviewed and are not covered product improvement programs requiring LFT&E. This determination was based on multiple factors, including the intended role and missions of the aircraft, combat experience to date, and concept of operations.



The integration of Cooperative Engagement Capability into the E-2C will increase the air surveillance, detection, and tracking capabilities of the battlegroup.

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Due to its importance to fleet air operations, the survivability of the E-2C will be evaluated for expected combat missions. The Navy has developed a comprehensive survivability evaluation plan to ensure the needed data and information are available.

TEST & EVALUATION ASSESSMENT

The MCU TEMP approval memo, signed July 27, 2000, called for an update to the TEMP within 90 days to define MCU FOT&E, which will include Electronic Support Measures and Satellite Communications. This TEMP has yet to be formally submitted to DOT&E.

The E-2C survivability program is adequate to evaluate the survivability of the aircraft.

Advanced Hawkeye radar risk reduction flight-testing was performed at the Naval Air Warfare Center Aircraft Division, Patuxent River, Maryland, on the NC-130H aircraft from December 2002 - June of 2003. The Advanced Development Model radar system used during the demonstrations at the Pacific Makaha Ridge Facility in 1997 and 1999 was integrated into the NC-130H. Specific risk reduction objectives included evaluation of space time adaptive processing operation in critical operational environments and conditions and radar system performance. The system was operated in overland and littoral environments that included ground traffic, clutter, jamming, and casual electromagnetic interference. Radar system assessment included controlled target detection range performance in clutter and jamming environments and system accuracy. Initial analysis of flight test data indicates the program met all system risk reduction objectives and achieved all predicted performance capabilities.

A critical aspect of E-2C AHE operational testing will be joint interoperability, an area that was unresolved in the MCU operational evaluation. The Joint Air and Missile Defense Organization is coordinating significant resource investment by OSD in a 2010 theater air and missile defense architecture. In addition to AHE, this effort includes other upgrades, such as the Block 40/45 upgrade to the E-3 and new platforms, such as the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor. Additionally, the Single Integrated Air Picture System Engineering Task Force is coordinating an effort to improve the quality of the air picture available to the Joint Forces Air Component Commander and to the forces conducting and fighting the air battle through improvements in the available data links. Joint interoperability will be key to OSD achieving its theater air and missile defense goals. Therefore, testing the joint interoperability of the participating platforms will be a critical part of their OT&Es.